

ABSTRACT OF THE DISCLOSURE

A substrate with a transparent conductive oxide film (especially a substrate with a transparent conductive oxide film useful as a substrate for a thin-film silicon-based solar cell) being excellent in mass production efficiency and being characterized by having a low resistance, a high transparency and a good light scattering performance over a full wavelength region (300 nm to 3 μ m) of solar ray, a process for its production, and a photoelectric conversion element (especially, solar cell) employing the substrate, are presented. A substrate with a transparent conductive oxide film, comprising a substrate and a transparent conductive oxide layer formed on the substrate and constituted by a plurality of ridges and a plurality of flat portions, wherein the surfaces of the ridges and the flat portions, have many continuous micron-size protrusions.